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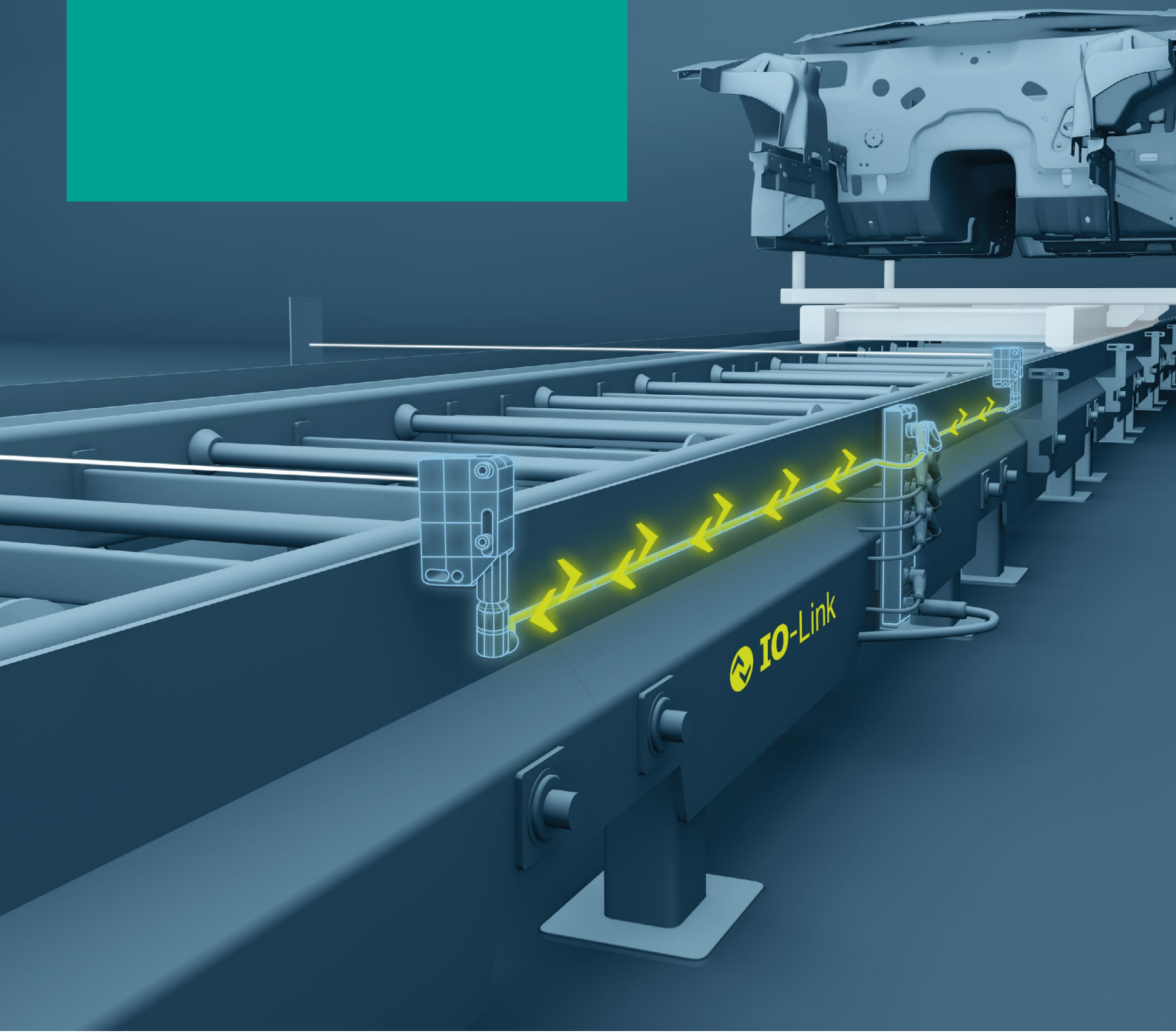
IO-Link

IO-Link
Offline Parameterization

Installation/User Instructions



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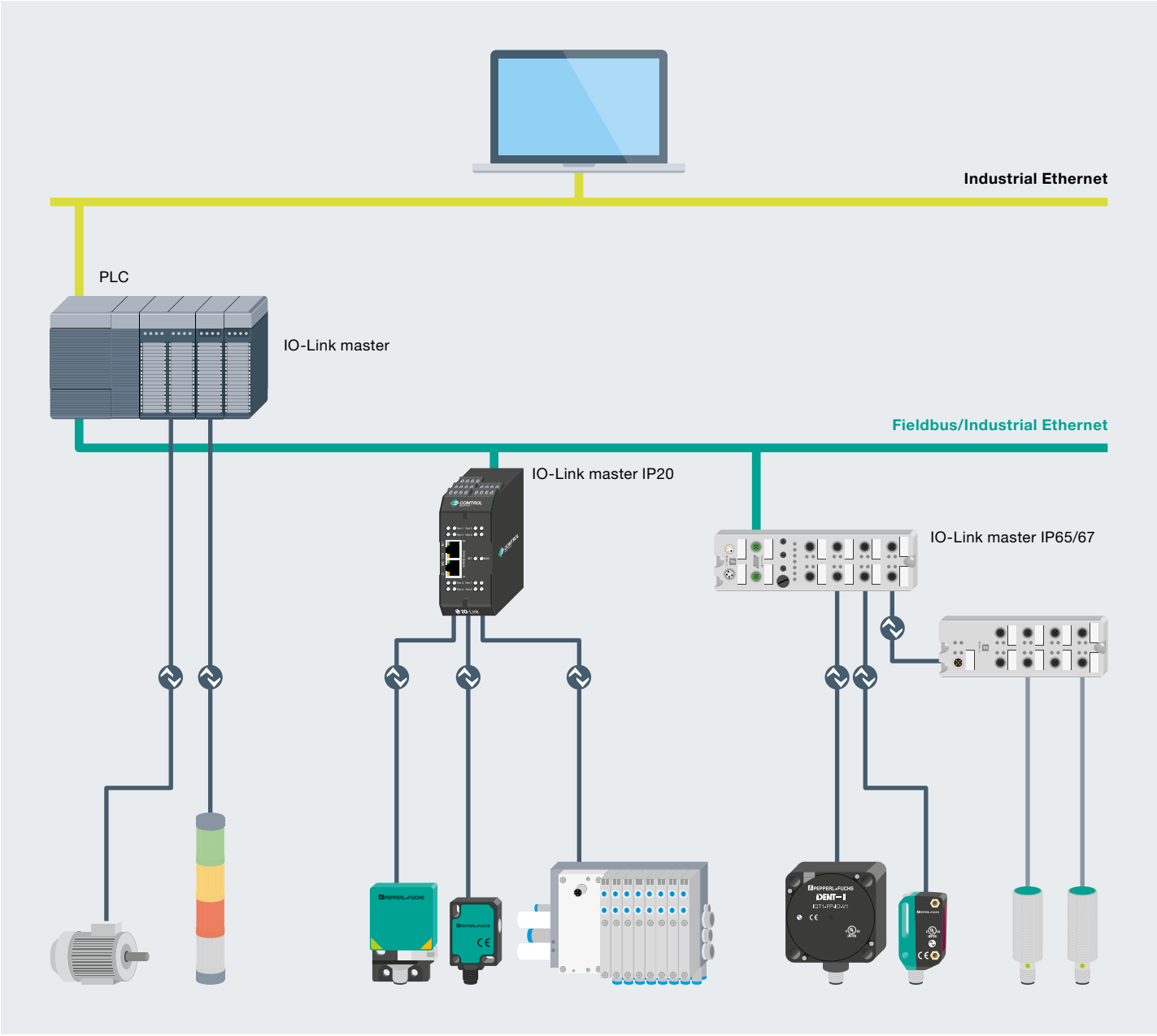
Brief Description of IO-Link

IO-Link is a serial digital protocol standardized in accordance with IEC 61131-9 and intended for use in automation technology. The technology links sensors and actuators to an automation system. Switch states (on/off) and analog signals are transferred between the above-mentioned components using state-of-the-art technology. IO-Link is also used to read status information from the system and to transmit parameterization information to the sensors and actuators (IO-Link device).

The IO-Link device communicates with the IO-Link master via a point-to-point connection. An IO-Link system consists of:

- The IO-Link master
- The IO-Link device
- An unshielded three, four, or five-core standard cable
- An engineering tool for project planning and Parameterizing IO-Link
- The relevant IODD device description files or device drivers



Example of system architecture with IO-Link

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IO-Link Offline Parameterization Using PACTware

The manufacturer-independent, fieldbus-independent PACTware operating software can be used to parameterize and operate IO-Link devices easily outside the plant, e. g., from a desk. In addition to the IODDs that are always available, device-specific DTMs (device type managers) can be obtained for numerous Pepperl+Fuchs IO-Link sensors. These allow users to conveniently operate the sensors via a graphical user interface.

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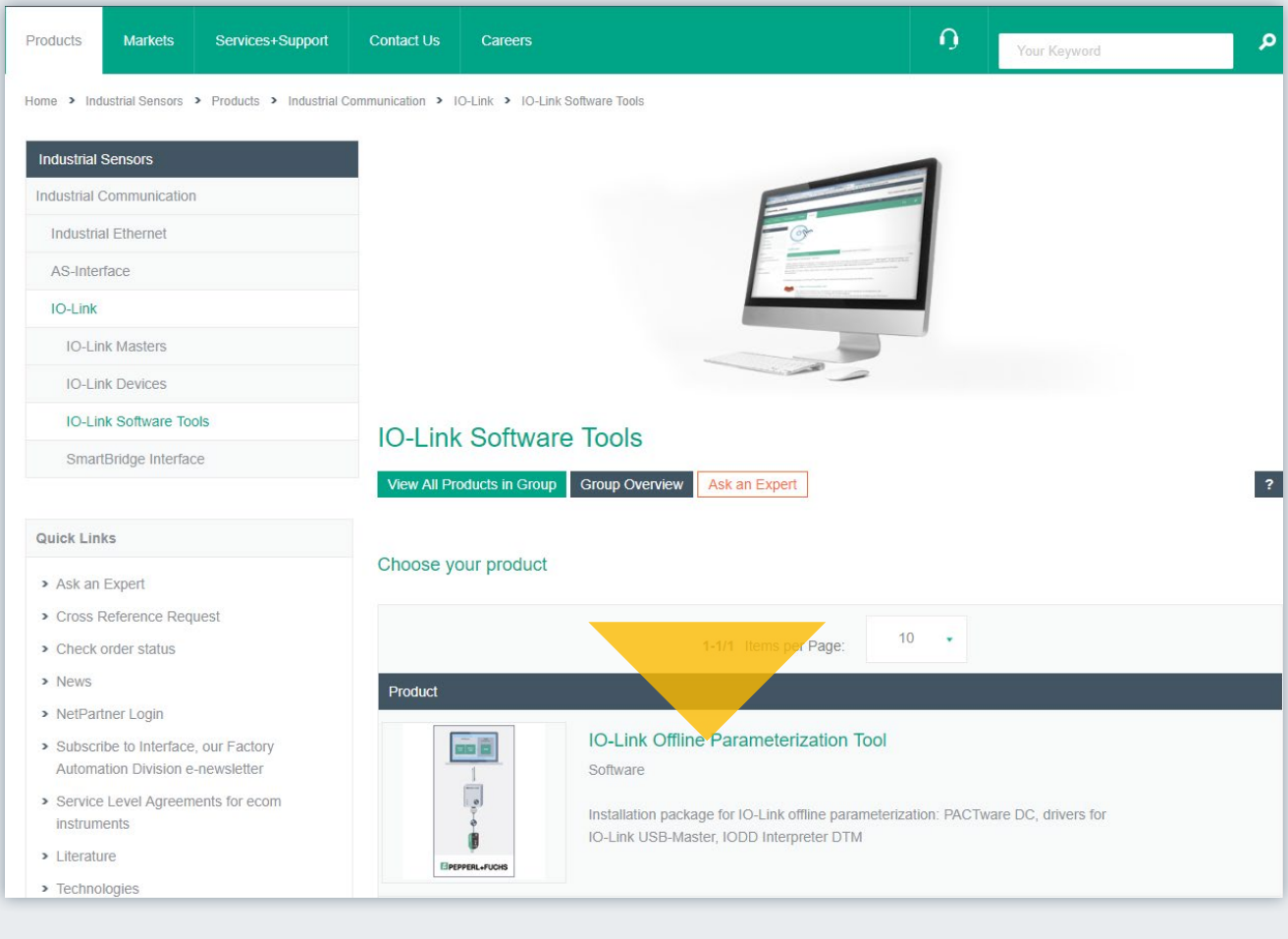
1 Installing the Software

1.1 Downloading the Software

All the files you will need to commission your IO-Link device can be downloaded as a single software bundle from **www.pepperl-fuchs.com.**

Select Products → Industrial Communication → IO-Link → IO-Link Software Tools to navigate to and download the software bundle.

Direct link:
www.pepperl-fuchs.com/tx-io-software



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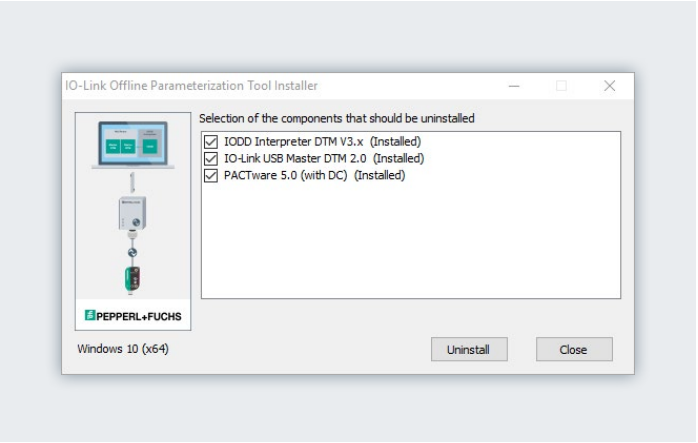
1.2 Installing the Software Bundle

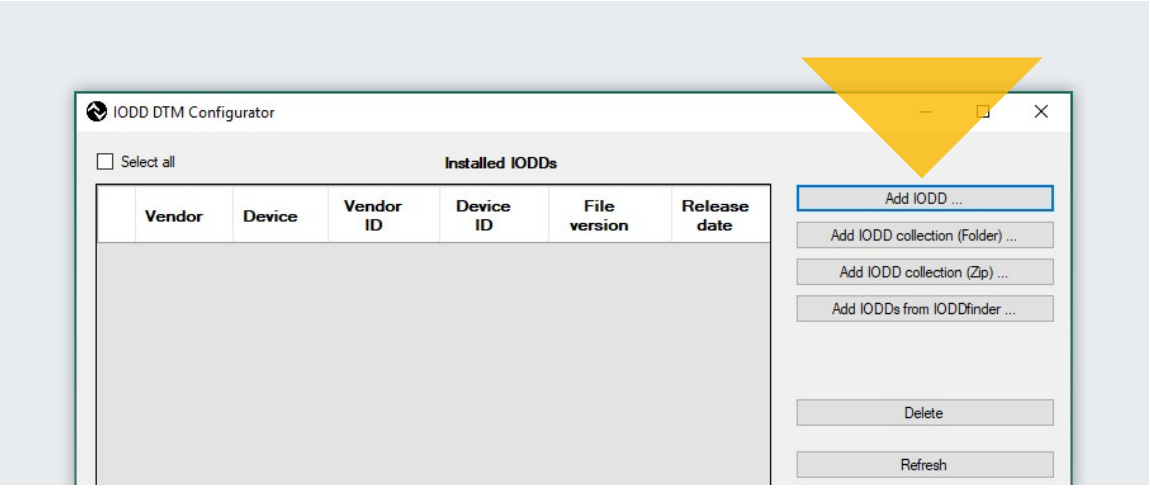
The installation package for offline parameterization of IO-Link contains the following components: PACTware DC 5.x, drivers for IO-Link USB master, IODD interpreter DTM.

- Unzip the ZIP file and start the installation by double clicking on “IO-Link_ParamTool_Setup.exe.”
- The checkmarks indicate the components to be installed.
- If necessary, select Microsoft .NET Framework to be included in the installation.
- Agree to the license terms and then click “Install.”
- Follow the subsequent instructions for the installation process.



1.3 Adding IODDs using IODD DTM Configurator

- Open the “IODD DTM Configurator” program.
- You have several options for adding IODDs to the catalog.



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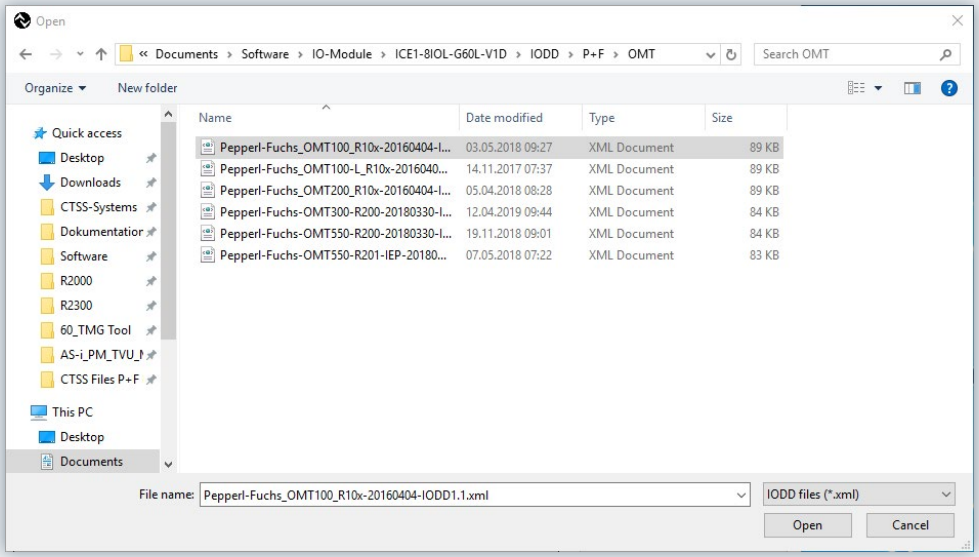
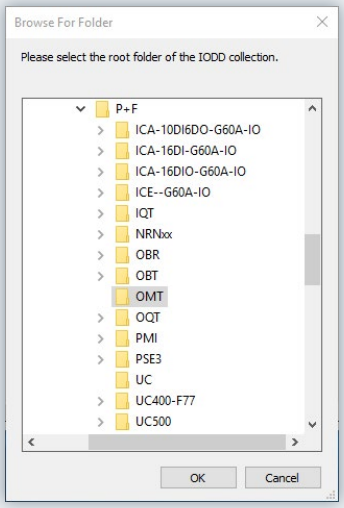
1.3.1 Add IODD

Adds an individual IODD to the catalog.



1.3.2 Add multiple IODDs (folder)

Adds a complete folder, which may contain several IODDs, to the catalog.



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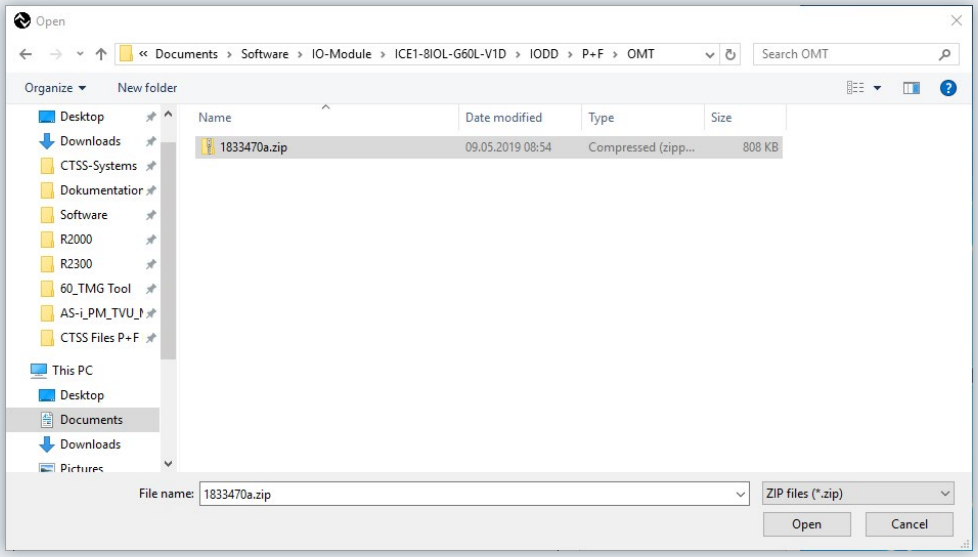
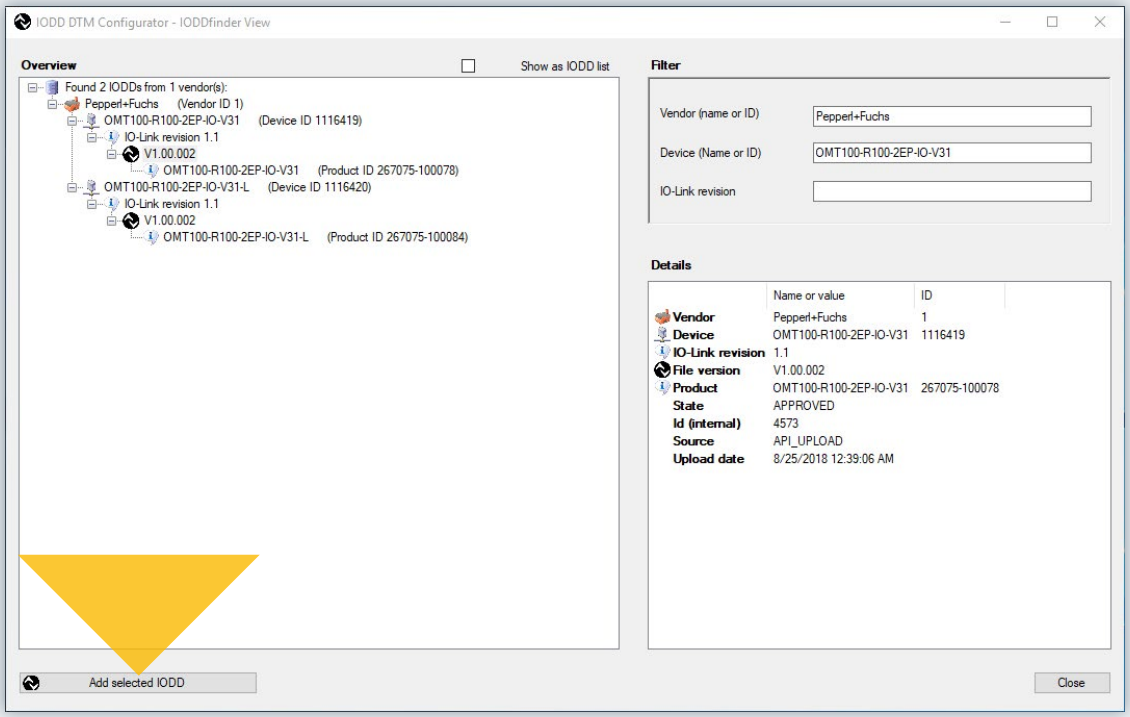
1.3.3 Add multiple IODDs (*.zip)

- Adds an archived folder, which may contain several IODDs, to the catalog, e. g., IODD download from the Pepperl+Fuchs website.



1.3.4 Add IODD from IODDfinder

- Allows full access to the IODDfinder database at **ioddfinder.io-link.com.**
- The filter mask can be used to filter by a manufacturer and device. Enter “Pepperl+Fuchs” for the manufacturer and the relevant device for the device (here: “OMT100-R100-2EP-IO-V31”).
- Select the IODD file version you need for the device (IO-Link icon, highlighted in blue here), and click “Add selected IODD.”
- An active internet connection is required!



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1.4 Installing Additional Device Software

- Search for the required IO-Link device (here: OMT100-R100-2EP-IO-V31).
- Click the search result (item name).

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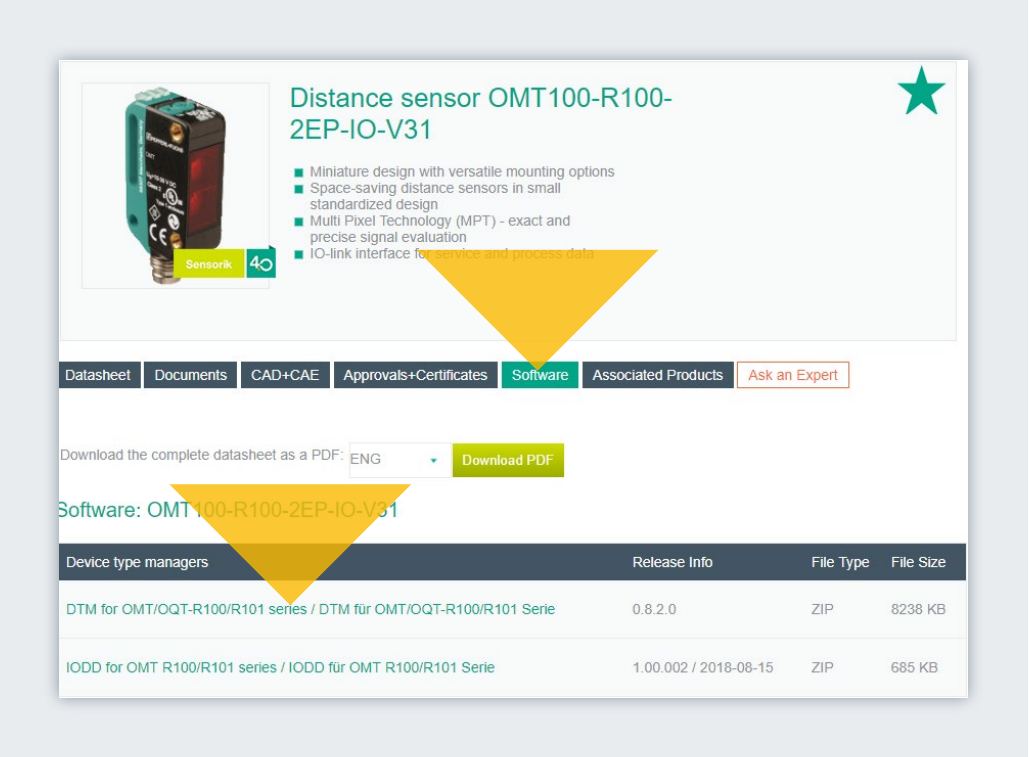
1.4.1 Selecting the Device Drivers

- You will be taken to the product page, which contains information about the device (datasheets, certificates, etc.).
- The downloads for commissioning a device with IO-Link can be found under the “Software” tab.



1.4.2 Downloading the Device DTM

Clicking “Software” takes you to the software section for the sensor. You can now download the device DTM for the sensor free of charge.

Note: The IODD can be downloaded from the “Software” section instead of using IODDfinder. See section 1.3.3.

1.4.3 Installing the Device DTM

Note: If an older version of the device DTM is installed, this must be uninstalled first!

- Navigate to where you saved the downloaded device DTM.
- Unzip the ZIP file and start the installation by double clicking on “setup.exe.”
- Follow the instructions for the installation process.

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2 Offline Parameterization

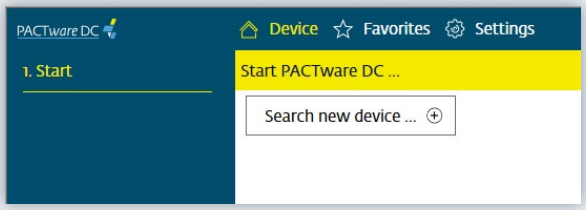
2.1 Hardware Components

- Connect the IO-Link-Master02-USB to the PC using the USB cable.
- Connect your IO-Link device to the USB master using the relevant cable.

Note: Sensors with a low current consumption are powered directly via the USB master. The additional external power supply for the IO-Link-Master02-USB is required for sensors with a higher current consumption.

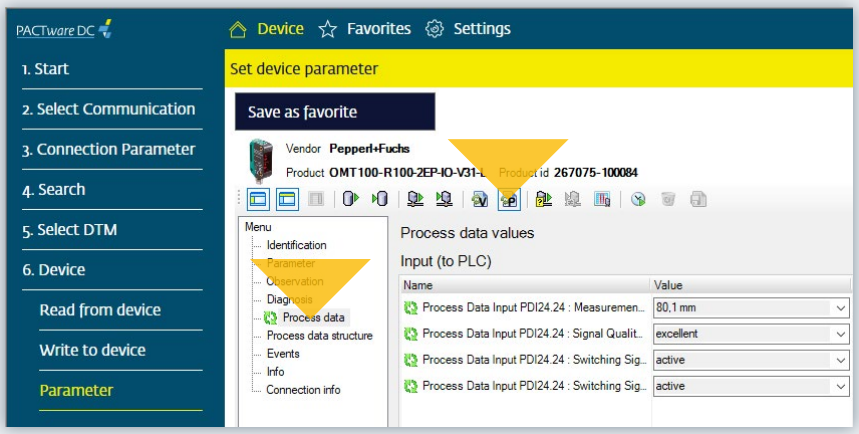
2.2 Opening PACTware

- Open PACTware DC 5.0.
- A new project opens automatically.
- The device catalog updates automatically.
- Click “Search for devices…”.
- PACTware adds the IO-Link USB master and the connected IO-Link device to the project automatically in the background.
- Click “Yes” in response to the “Read from device (upload)?” dialog box to synchronize the parameter values displayed in PACTware with the parameter values on the device.



2.3 Reading Process Data Cyclically

- Click “Process data” in the device selection menu to open the process data view.
- By default, PACTware does not request process data cyclically and only saves the values acquired when the data was last read, e.g., after a connection was established.
- Click the “Enable cyclic read from device for process data” icon to start cyclic reading of all process data supplied by the device.
- Move the connected IO-Link device to trigger a change to the data/distance.



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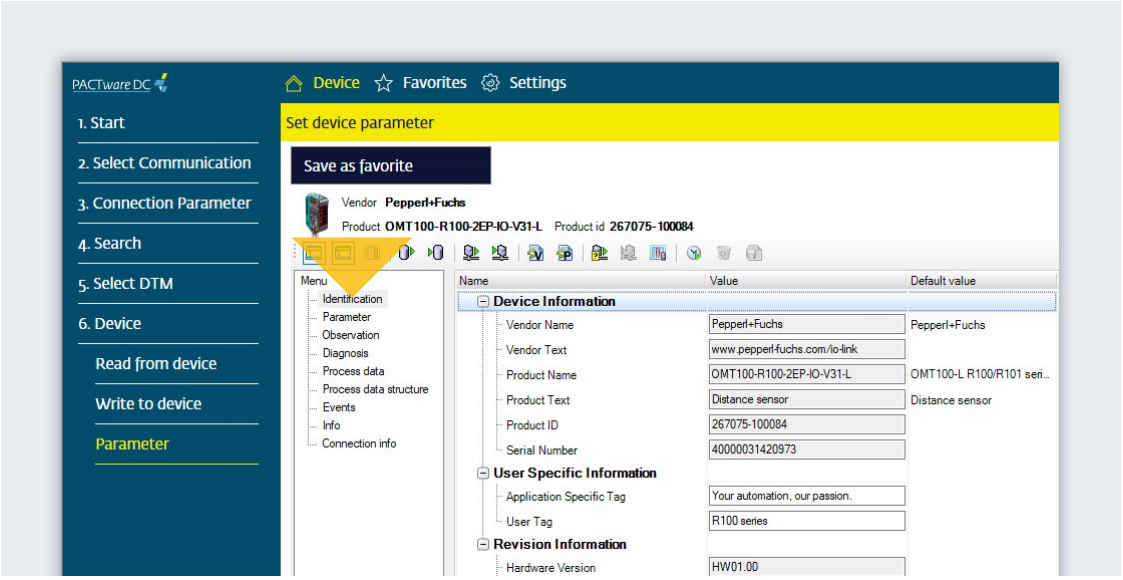
2.4 Reading Parameter Values

The reading of parameter values is shown using identification data as an example:

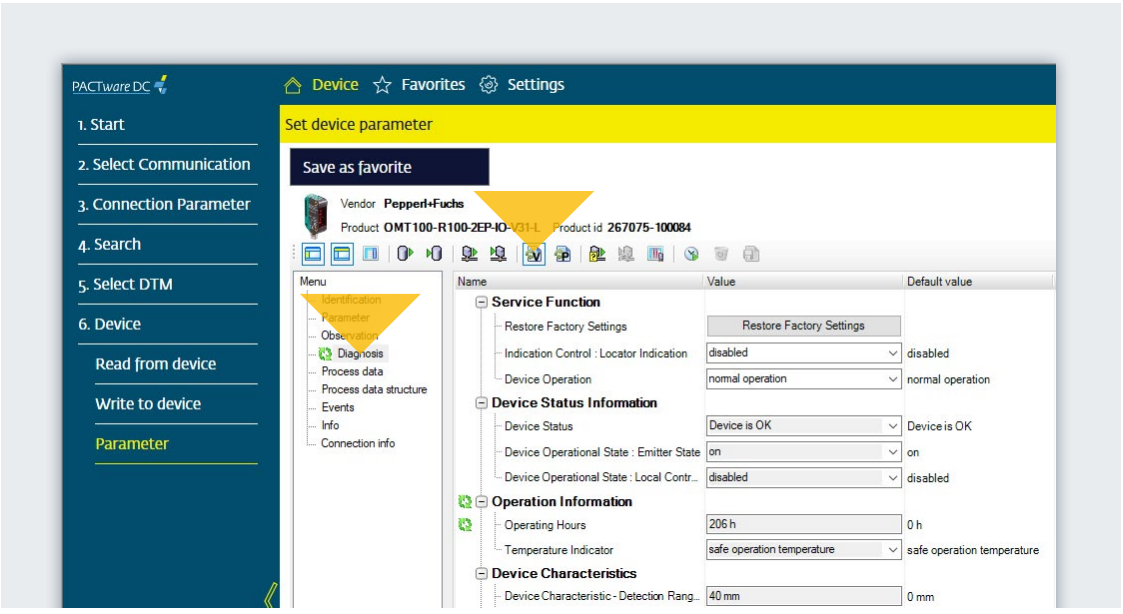
- In the device selection menu, click “Identification” to open the device information view.
- This screen displays all the key product information, e. g., product name, item number, serial number, etc.
- Application-specific information can be saved to the device in this view via the “Application Specific Tag” and “User Tag” parameters.



2.5 Reading Parameter Values Cyclically

Enable parameter data to be read cyclically to display up-to-date diagnostic information and observation data from the device.

- In the device selection menu, click e. g., “Diagnosis” to switch to the device diagnosis view.
- Click the “Enable cyclic read from device for dynamic variables” icon to start cyclic reading of all supplied variables that change in the device.
- This screen displays all the key diagnostic information, e. g., operating hours counter, temperature indication, etc.



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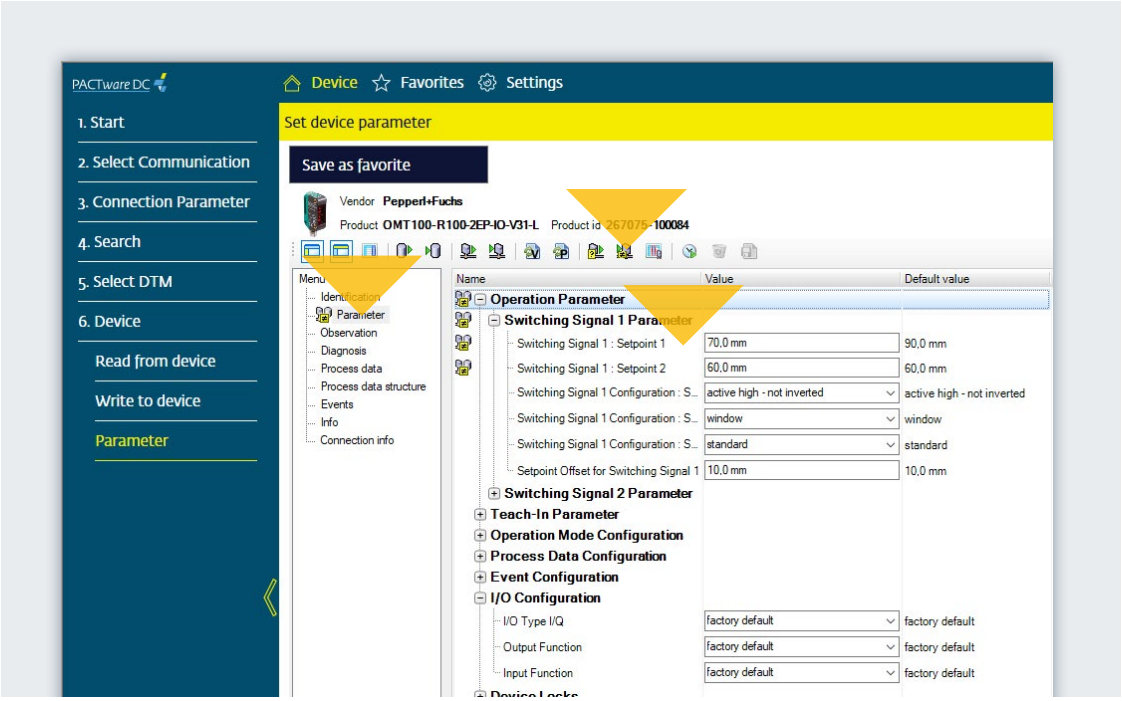
2.6 Writing Parameter Values

The writing of parameter values is shown using switching signal 1 as an example:

- In the device selection menu, click “Parameter” to switch to the device parameter view.
- Change the value for “Switching Signal 1 – Setpoint 1” to 70 mm. Press Enter to confirm the entry.
- Click the “Write different values to device” icon.
- The device adopts the new switch point.

Note: The modified parameters can also be transferred to the device via the “Write to device (download)” icon. In this case, all data (changed and unchanged) is written, which takes more time.



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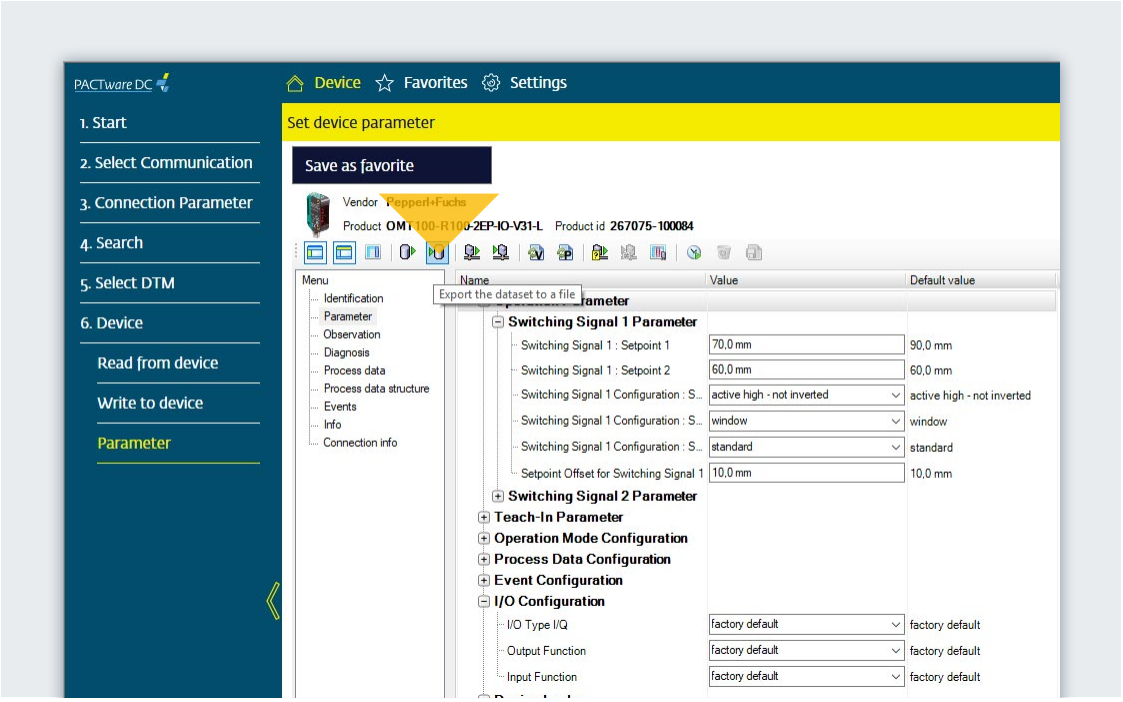
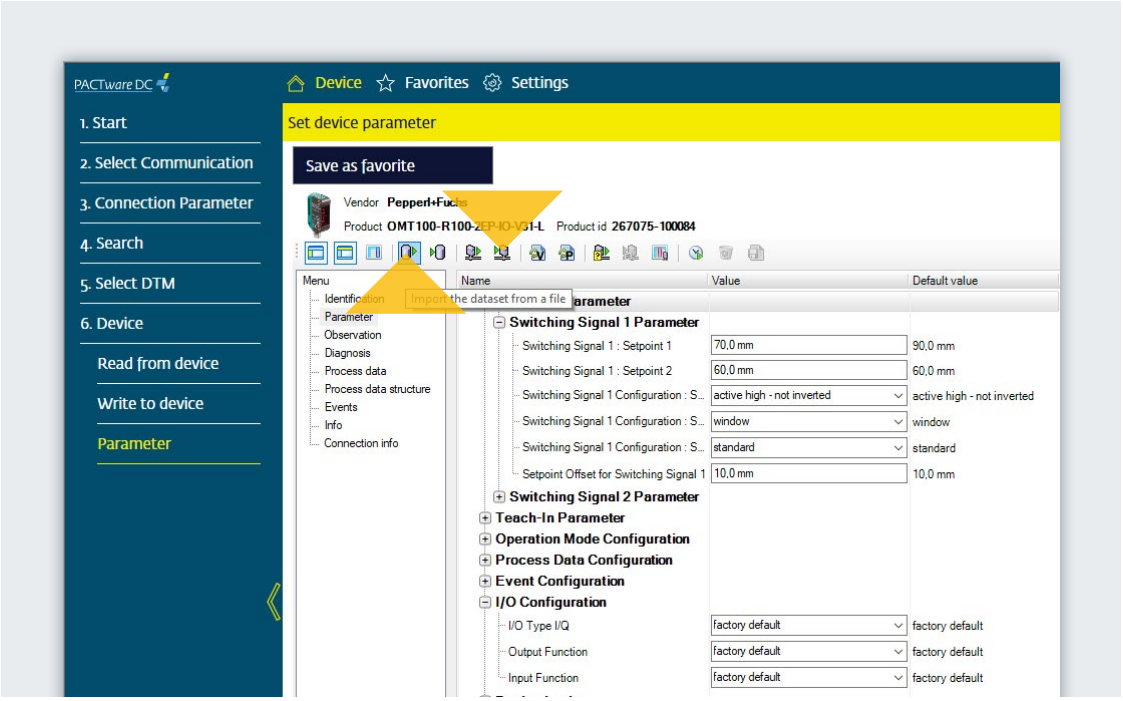
2.7 Cloning Parameter Values

- Cloning parameter values enables quick and easy replication of complete parameter sets for multiple IO-Link devices of the same type.
- The created parameter set is exported to a PACTware-independent, version-independent XML file format and can then be imported again.
- To do this, click “Export the dataset to a file” in the icon tray selection menu.
- Save the created parameter set on your PC and disconnect the connection to the sensor.
- Connect a new sensor of the same type (here: OMT100-R100-2EP-IO-V31) to your USB IO-Link master.
- Click “Import the dataset from a file” in the icon tray selection menu and select the required dataset.
- All non-standard parameter values are indicated by a corresponding icon.
- Click the “Write to device (download)” icon to transfer the complete parameter set to the IO-Link device.
- The cloning process is now completed.

Note: A parameter set generated in this way can be read in any environment using the IODD interpreter DTM and written to a device of the same type.





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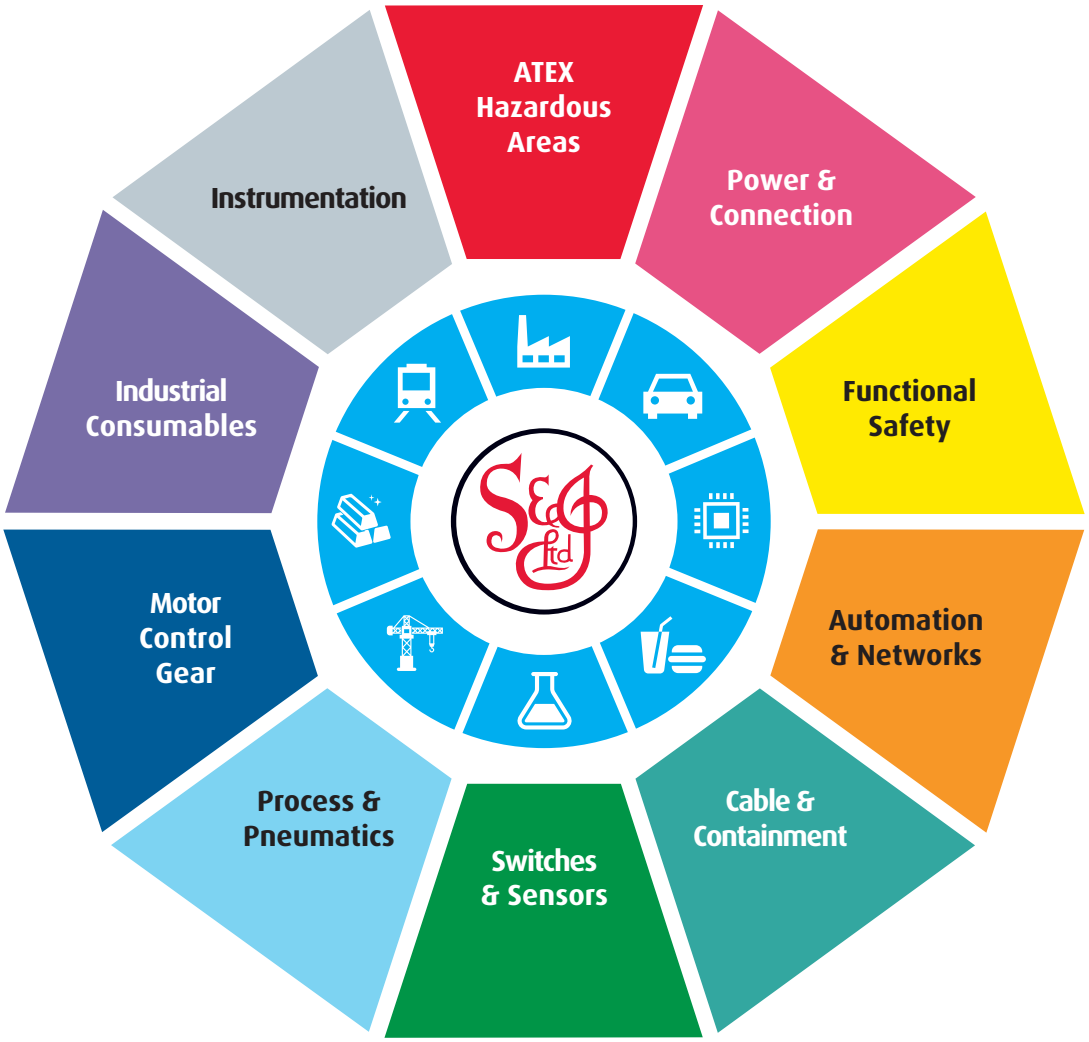

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